

### **REMARKS**

Claims 16 and 59 have been cancelled. New claims 63-66 have been added via the present amendment. The claims remaining in the application are 1-15, 17-58, and 60-66.

### **Drawings**

A copy of the formal drawings are submitted herewith with a copy of the Letter to the Official Draftsperson. Approval by the Examiner is respectfully requested.

### **Claims**

New claims 63-66 are based on Figures 5 and 6 of the present invention. No new matter has been added.

### **Rejection Under 35 U.S.C. § 112**

The Office Action has rejected claims 16 and 59 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. Claims 16 and 59 have been cancelled.

### **Rejection Under 35 U.S.C. § 103**

The Office Action has rejected claims 1, 9-24, and 32-61 under 35 U.S.C. 103(a) as being unpatentable over Lorie (U.S. Patent 6,691,309) in view of Smith et al. (U.S. Patent 6,442,296), and further in view of Frary et al. (U.S. 5,971,281). This rejection is respectfully traversed.

The Office Action has rejected claims 2, 3, 5-7, 25, 26, and 28-30 under 35 U.S.C. 103(a) as being unpatentable over Lorie in view of Smith further in view of Frary as applied to claim 1 above, and further in view of Kurita (U.S. 5,933,257). This rejection is respectfully traversed.

The Office Action has rejected claims 4, 27, and 62 under 35 U.S.C. 103(a) as being unpatentable over Lorie in view of Smith further in view of Frary as applied to claim 1 above, and further in view of Leslie (U.S. Patent Application Publication 2003/0142325). This rejection is respectfully traversed.

The Office Action has rejected claims 8 and 31 under 35 U.S.C. 103(a) as being unpatentable over Lorie in view of Smith further in view of Frary

as applied to claim 1 above, and further in view of Thompson (U.S. Patent 6,043,845). This rejection is respectfully traversed.

Lorie discloses a method of archiving digital data or computer program based on using a virtual computer instruction set and saving the algorithm that decodes the data as a program in that virtual machine language. Although it avoids the problem of long term changes in digital standards and data formats, it does not address the problem that in order for the archived data to remain available and accessible in long term, migration of the archived data is necessary from one storage system to a new storage system, as storage platforms evolves over time. The need for data migration is understood from the fact that the disclosed Universal Virtual Computer and its functional elements are implemented in various computing environments and stored in computer memory or similar kind of digital medium. Lorie has explicitly stated this need in a related publication "Long Term Preservation of Digital Information," p. 352.

As discussed on p. 2, paragraph 1 of the specification of the present invention, the task of maintaining archived data through migration can be daunting, and may be costly and labor-intensive and can involve risk of data loss. This problem is inherent in binary storage systems, such as those required by the Lorie method, and is one of the key problems addressed by the present invention. The present invention not only provides a method for long term storage of digital data allowing data retrieval independent of hardware and software applications, but it also addresses the problem of the need for data migration. It provides a complete, end-to-end system solution involving the writing of digital data as images on analog preservation media, which are expected to last hundreds of years when stored under suitable conditions (p. 1, paragraph 2) and thus eliminate the cost and risks of data migration (p. 10 paragraph 5).

Furthermore, the Office Action states that the Lorie reference discloses "a display for representing said at least one preview image (column 12 lines 29-30)." While the display as discussed in the Lorie reference can certainly display any image, the Lorie reference does not provide any teaching on the generation and usage of a preview function to represent preserved data record as it would appear under different retrieval conditions. In contrast, the generation and displaying of preview images based on simulating the action of writer, media, and

scanner during data recording and retrieval steps, a feature central to the system in the present invention, is entirely outside of the scope of the Lorie disclosure.

The present invention was distinguished from U.S. Patent No. 6,442,296 (Smith et al.) (which, at the time of filing, was not yet issued, but was published as PCT application WO 00/28726) on p. 6, paragraph 3 of the specification. Smith et al. discloses storage of a two-dimensional document on a laser-writable optical storage medium, wherein an image of the document is written onto the media along with the binary data representing the digital record. However, the solution disclosed in Smith et al. is limited to storage of document data, which is merely a subset of the larger set of data types that may need to be preserved. It does not address how to preserve digital data other than the documents itself.

The present invention discusses the need to preserve other forms of digital data in long-term media (p. 7, paragraph 3), and provides a solution by adapting Extensible Markup Language (see section on Data Encoding on p. 28) for encoding data for preservation. The other significant drawback of the Smith et al. system is that it employs conventional optical recording medium requiring a laser for writing. The present invention does not have this limitation; the preservation medium can be exposed by a wide variety of light sources, as discussed on p. 26, paragraph 1. Furthermore, the write-many-times characteristic of the system disclosed in Smith et al. makes the system unsuitable for preserving data records that are certifiably unaltered over time. The need to have a write-once data preservation system, however, is addressed (see last paragraph on p. 2) and provided for by the present invention.

It is also submitted that the Frary reference does not disclose a storage apparatus for safekeeping of human-readable preserved data record, contrary to statements in the Office Action. The Frary disclosure is concerned with storing digital data on a physical volume (such as magnetic tape cartridge) that is digital in nature, wherein data is stored as binary bits that are only readable by machines. As disclosed, the label of the cartridge may have human-readable symbols written on it, but the symbols are for recording metadata associated with the file management system (column 8, paragraph 3); they are not the actual stored data. The human-readability of any type of stored data, as described and

claimed in the present invention, represents a significant difference between the present invention and the Frary disclosure.

The Office Action also contains arguments for obviousness rejections based on Kurita (U.S. Patent 5,933,257) and Leslie (U.S. Patent Application Publication 2003/0142325). It is submitted that while Kurita and Leslie both contain preview features as in the present application, they are markedly different from the present invention in the preview's function and implementation. The previews for both the Kurita and Leslie disclosures are "pre-printing" operations for printing systems. In Kurita, preview displaying is used to confirm an edited image before making a hard copy in a copy machine; the disclosure teaches how to provide the same color process for previewing as that for copying. In Leslie, an electronic screen-display preview is used to show the print result before the actual printing; it teaches calling upon the printer to directly control and create all requested print previews.

Preview in the present invention, on the other hand, is a "pre-storage" operation for a data archival or preservation system. Implementation of the preview function involves simulating the combined operating characteristics of the writer, media, and scanner, and all pre- and post- processing steps as a part of the data preservation process. As discussed on the last paragraph of page 8 of the specification, the preview function has not been made available for data archival systems, and it has not been possible for a user of an archival system to view and select from possible options for image quality characteristics when a document or image is stored or retrieved. Certainly, the Kurita and Leslie provide no teaching on how to implement such a preview feature in a data archival system. Therefore, it is respectfully submitted that the disclosure of Kurita and Leslie do not render obvious the solution of the present invention.

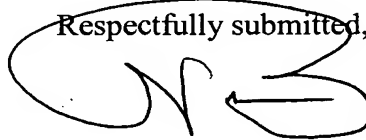
### **CONCLUSION**

Dependent claims not specifically addressed add additional limitations to the independent claims, which have been distinguished from the prior art and are therefore also patentable.

In conclusion, none of the prior art cited by the Office Action discloses the limitations of the claims of the present invention, either individually or in combination. Therefore, it is believed that the claims are allowable.

If the Examiner is of the opinion that additional modifications to the claims are necessary to place the application in condition for allowance, he is invited to contact Applicant's attorney at the number listed below for a telephone interview and Examiner's amendment.

Respectfully submitted,



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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.

Enclosures: Copy of Letter to Draftsperson  
Copy of Formal Drawings